IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1-12. (Canceled).

13. (Currently Amended) A mode determining apparatus comprising:

a detector that detects changes in each order component of a quantized LSP parameter, which represents spectral characteristics, in a predetermined period; and

a mode determiner that determines that the predetermined period indicates a speech mode when the detector detects a change greater than a predetermined level in relation to at least one order component.

14. (Canceled).

15. (Currently Amended) A mode determining apparatus comprising:

an average LSP calculator that calculates an average quantized LSP parameter, which represents spectral

characteristics, in a period in which a quantized LSP parameter is stationary;

a difference calculator that calculates differences between order components of the average quantized LSP parameter and corresponding order components of quantized LSP parameter in a current frame, respectively; and

a first mode determiner that determines that the frame indicates a speech mode when a difference greater than a predetermined level is calculated between at least one pair of order components.

16. (Previously Presented) The mode determining apparatus according to claim 15, further comprising:

an inter-frame change calculator that calculates inter-frame changes in the quantized LSP parameter; and

a second mode determiner that determines that a period indicates the speech mode when the period shows an inter-frame change greater than a predetermined level, wherein:

the average LSP calculator determines that, in part or all of periods other than the period the second mode determiner determined to indicate the speech mode, the quantized LSP parameter is stationary;

the first mode determiner determines whether the periods other than the period determined by the second mode determiner to indicate the speech mode indicate the speech mode; and

two step mode determination is performed by using the first mode determiner and the second mode determiner.

17. (Previously Presented) A multimode speech decoding apparatus comprising:

a decoder that decodes a code representing a quantized LPC and generates a quantized LSP parameter;

the mode determining apparatus of claim 15 that performs mode determination utilizing the quantized LSP parameter generated in the decoder; and

a random codebook that generates a random codebook vector comprising one of a pulse and noise according to the determination result in the mode determining apparatus, wherein the mode determining apparatus comprises:

an average LSP calculator that calculates an average quantized LSP parameter in a period in which the quantized LSP parameter generated at the decoder is stationary,

a difference calculator that calculates differences between order components of the average quantized LSP parameter and

corresponding order components of a quantized LSP parameter in a current frame, respectively, and

a first mode determiner that determines that the frame indicates a speech mode when a difference greater than a predetermined level is calculated between at least one pair of order components.

18. (Previously Presented) A multimode speech decoding apparatus comprising:

a decoder that decodes a code representing a quantized LPC and generates a quantized LSP parameter;

the mode determining apparatus of claim 15 that performs mode determination utilizing the quantized LSP parameter generated in the decoder; and

a stationary noise generator that drives a synthesis filter by means of a random signal obtained from a random codebook, the synthesis filter comprising an LPC parameter obtained from the average quantized LSP parameter, in periods other than the period the mode determining apparatus determined to indicate the speech mode, and superimposes stationary noise generated over decoded speech, wherein the mode determining apparatus comprises:

an average LSP calculator that calculates an average quantized LSP parameter in a period in which the quantized LSP parameter generated at the decoder is stationary,

a difference calculator that calculates differences between order components of the average quantized LSP parameter and corresponding order components of a quantized LSP parameter in a current frame, respectively, and

a first mode determiner that determines that the frame indicates a speech mode when a difference greater than a predetermined level is calculated between at least one pair of order components.

19. (Previously Presented) A multimode speech coding apparatus comprising:

an LPC analyzer that performs LPC analysis of an input signal and calculates an LPC parameter;

an LPC quantizer that quantizes the LPC parameter and obtains a quantized LSP parameter;

the mode determining apparatus of claim 15 that utilizes the quantized LSP parameter; and

a noise codebook that generates a noise code vector according to the determination result in the mode determining apparatus.

20. (Previously Presented) The multi-mode speech coding apparatus of claim 19 further comprising a search range determiner that, in the periods other than the period the mode determining apparatus determines to indicate the speech mode, sets a search range for a pitch period in an adaptive codebook greater than a subframe length.

21. (Currently Amended) A mode determining method comprising:

detecting changes in each order component of a quantized LSP parameter, which represents spectral characteristics, in a predetermined period; and

determining that the predetermined period indicates a speech mode when a change greater than a predetermined level is detected in relation to at least one order component.

22. (Currently Amended) A mode determining method comprising:

calculating an average quantized LSP parameter, which represents spectral characteristics, in a period in which a quantized LSP parameter is stationary;

calculating differences between order components of the average quantized LSP parameter and corresponding order

components of a quantized LSP parameter in a current frame, respectively; and

determining that the frame indicates a speech mode when a difference greater than a predetermined level is calculated between at least one pair of order components.

23. (Previously Presented) The mode determining apparatus according to claim 13, wherein the first mode determiner specifies a maximum change among changes in order components detected at the detector and determines that the predetermined period indicates the speech mode when the maximum change is greater than the predetermined level.

24. (Previously Presented) The mode determining apparatus according to claim 15, wherein the first mode determiner specifies a maximum difference among differences calculated by the difference calculator and determines that the frame indicates the speech mode when the maximum difference is greater than predetermined level.